SCAYLE

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Type of organisation:

SME ☐ School ☐ University ☐ Public Authority ☐
Training ☐ No Profit ■ NGO ☐

Other (Specify) Public Fundation

Fields of action :

SMEs ■	Youth ■	Universities ■	Public Authorities ■
Equal opportunities ☐	Schools ☐	Unemployed ☐	

Other (Specify) Researches, RD&I

Description of the organisation

SCAYLE is a non-profit organization, belonging to the public sector of the Spanish autonomically region of Castilla y León, whose aim is the improvement of research tasks in Universities, R+D+i centres and companies in Castilla y León, promoting and developing innovation actionson intensive calculation, communications and advanced IT services.

SCAYLE manages Information and Communication Technologies infrastructures to provide services to research organisations, companies and institutions, boosting scientific cooperation and the use of common infrastructures, acting as a centre for advanced computing and communications services in Castilla y León and promoting the development of science and technology transfer.

Its mission is to lead the management and use of HPC infrastructures, advanced communications networksto support and improve the quality and efficiency of research systems, public information processing systems and the productivity and competitiveness. Its main value is social commitment by contributing through technological improvement to the Community's economic development and improving the competitiveness of enterprises.

SCAYLE works on the development of strategic lines based on the establishment of permanent collaboration networks that guarantee the efficient use of shared technological infrastructures. It is constantly updating its technological capabilities, contributing in an efficient way to the development of science and technology transfer and participating in the construction of the competitive advantage indoctrinated by the Regional Strategy for Scientific Research, Technological Development and Innovation of Castilla y León.

The fundamental vocation of SCAYLE is to provide intensive computing services, both in programs that require massive parallel processing (under the MPI standard, Message Passing Interface), and in those that require high capacity in sequential executions or for those that require high RAM memory in their execution.

The main cluster of our Data Center has about 350 servers totaling 390 TFLOPS, 6000 processing cores on general purpose processors and 76800 NVIDIA CUDA cores on NVIDIA V100 GPU cards. In terms of total RAM, the compute servers have a total of 17088 GB. A Lustre parallel file system is available as a solution for storing computing programs and their input and output data, providing a total available capacity of 650 TB.

The high-performance interconnect system that connects all servers and storage and enables the calculation of complex tasks by distributing the calculations among tens or hundreds of servers is based on Infiniband FDR (56 Gbps, 40Gbps) and HDR (200Gbps) interconnect technology.

To keep the calculation system up and running, with high service levels, SCAYLE facilities have a variety of infrastructures necessary to ensure continuous operation. Uninterruptible power supply systems, emergency electrical generator, fire detection and extinguishing systems and biometric fingerprint access control guarantee the proper functioning of the system.

SCAYLE is also the lead agency of the Science and Technology Network of Castilla y León. This network is a high capacity optical network (more than 1400 km of dark optical fibre backbone) that provides interconnection services and Internet access to public universities in the Autonomous Community, university hospitals, technology parks and research centres located in its territory. SCAYLE data centre houses some of the systems that are critical to the operation of this network.

Finally, integrated into the data center infrastructure is the virtualization farm or private cloud computing system that SCAYLE has. This system, composed of several dedicated servers and storage booths (100 TB), provides virtual machine based services to a variety of public institutions, such as regional government departments or universities. At the time of writing, the number of virtual machines in operation is over 500.

Experience of the organization in previous European projects

EUROCC - National Competence Centres in the framework of EuroHPC
Leader: Universitaet Stuttgart
Funding: H2020-JTI-EuroHPC-2019
Length: 01.09.2020 - 31.08.2022
web: https://www.eurocc-project.eu/

OPEN IACS
Leader: Universidad Carlos III de Madrid

Funding: Innovation and Networks Executive Agency INEA.2018-EU-IA-0086
Length: 01.07.2019 - 01.07.2022
web: https://open-iacs.eu/

European project CROSS Harmonization & HPC modelization of FOREST Datasets
Leader: Tragsa
Funding: Innovation and Networks Executive Agency INEA. 2017-EU-IA-0140
Length: 01.09.2018 - 28.02.2021
web: https://crossforest.eu/

European project FI4VDI SUDOE
Leader: SCAYLE
Funding: Programa de Cooperación Territorial del Espacio Sudoeste Europeo (SUDOE)
Length: 01.01.2013 - 30.06.2015
web: https://bit.ly/2RsCOcp

SKA, Square Kilometre Array
Leader: Organization SKA
Funding: Organization SKA
Length: 01.01.2013 - 31.12.2023
web: http://skatelescope.org/

METEORISK
Leader: Dominion
Funding: Programa Retos - Colaboración del Programa Estatal de Investigación, Desarrollo e Innovación Orientada a los Retos de la Sociedad del Ministerio de Economía y Competitividad
Length: 08.12.2014 – 30.06.2017
web: http://www.meteorisk.es/

Sustainable Hydrothermal Manufacturing of Nanomaterials (SHYMAN)
Leader: Grupo de Procesos de Alta Presión, HPPG, Dpto. Ingeniería Química y Tecnología del Medio Ambiente, Área de Ingeniería Química. Universidad de Valladolid
Funding: FP7-NMP-201 1 -Large 5 Scale Collaborative Project–Cross Cutting and enabling R&D.
Length: 01.05.2012 - 01.05.2016.
web: http://www.shyman.eu/

Experience and Expertise of the organization in the project's subject area

SCAYLE, due to its nature as a research support infrastructure, has long experience in many different fields of science.

Contributions that can be provided to the project

SCAYLE can bring to the project its long experience in European and national projects, as well as its extensive network of contacts.

Reasons of involvement in the project

SCAYLE receives many visits a year from students from the university of León, from other universities and from secondary school students from all over Spain. For this reason, and in view of the problem posed by the presence of covid-19 all over the planet, SCAYLE intends to implement an advanced system of virtual visits to its scientific facilities to increase the knowledge of the research community and the general public.

Contact Person's Experience and Expertise

Dr. Vicente Matellán Olivera (M) got his PhD in Computer Science from the Technical University of Madrid. He was Assistant Professor at Carlos III de Madrid (Spain) (1993-1999). Associate Professor at Universidad Rey Juan Carlos (URJC - Madrid, Spain) from 1999-2008. In 2008 he joined Universidad de León, where he was appointed as Director of the IT facilities (2008-2016). Since 2017 he is the CEO of SCAYLE.

He has been principal investigator and participant in many research national and international projects, with large experience in EU projects, starting in the VISOR project (FP5, IST-1999-10808), in projects funded by different EU agencies, for instance ComCog (ESF, 06-RNP-0209); and also in collaboration with other regions, for example collaborating in TEMPUS projects (GoUniv, 544190-TEMPUS-1-2013-1-MA).

He has published more than 160 papers in books, journals, and international conferences and supervised 12 doctoral thesis.

Dr. Álvaro Fernández (M) got his PhD in Production and Computing Engineering from the University of León. Currently, he is the Administrative-Financial Director at SCAYLE since 2009 and Assistant Professor in the Faculty of Economics at the University of León since 2012.

He previously worked in multinational companies (1998-2003) in industrial and construction sectors and as a Director of Management in a Public Hospital (2003-2009).

During the last years, he has participated as controller in several research projects of SCAYLE, giving support in administrative and financial processes of the projects.

He has published articles related to training in Supercomputing, participating in various meetings and conferences both at national and international level.

Alvaro Fanego Lobo (M) is a Computer Engineer from the University Oberta of Cataluña. He is Project Manager of SCAYLE since 2013.

He has been project manager for the last 20 years both at national and European level. He has experience as a technical coordinator in European projects related to High Performance Computer infrastructures, fire simulation, Cybersecurity, etc. He is also part-time lecturer at Universidad de León since 2018.

Previously he was responsible for R&D in a national reference centre of the Ministry of Social Affairs for 5 years.